



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,685	07/17/2003	Akio Tajima	N03404US	9634

21254 7590 08/31/2006

MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC  
8321 OLD COURTHOUSE ROAD  
SUITE 200  
VIENNA, VA 22182-3817

EXAMINER

LE, THI Q

ART UNIT PAPER NUMBER

2631

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/620,685

Applicant(s)

TAJIMA, AKIO

Examiner

Thi Q. Le

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003 and 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/17/03, 4/27/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. **Claims 1-24**, are drawn to an optical network protection architecture, classified in class 398, subclass 4.
  - II. **Claims 25-32**, are drawn to switching element within an optical network protection architecture, classified in class 398, subclass 45.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of **claims 1-24** and of **claims 25-32** are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because any other switching element not claimed by applicant can provide switching operation necessary for the invention in claims 1-24 to function properly. The subcombination has separate utility such as multiplexing and demultiplexing optical signal of different wavelengths.
3. During a telephone conversation with Sean McGinn on 8/21/2006 a provisional election was made with traverse to prosecute the invention of a switching device for transmitting a plurality of external optical signals, **claims 25-32**. Affirmation of this election must be made by applicant in replying to this Office action. **Claims 1-24** withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Priority***

4. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

***Information Disclosure Statement***

5. The information disclosure statement (IDS) filed on 7/17/2003 and 4/27/2006 was considered by the examiner.

***Specification***

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **“An optical signal switching device for use in an optical protection network”**.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 25 - 32** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. **Claims 25-26 and 31-32** are rejected under 35 U.S.C. 102(b) as being anticipated by **Sugawara et al. (US PGPub 2002/0044315)**.

Consider **claim 25**, Sugawara et al. clearly show and disclose, a switching device (read as, optical switching apparatus) for transmitting a plurality of external optical signals through a plurality of optical signal communication lines, comprising: a plurality of optical multiplexing and demultiplexing devices (read as, MUX and DMUX in figure 1) each being placed so as to correspond to said optical signal communication line and having a plurality of first input and output ports (read as, inputs from DMUX going into the switch) and one second input and output ports (read as, output from MUX after passing through switch), which allows optical signals being different from one another to be transmitted between each of said first input and output ports and said second input and output ports (read as, signal of different wavelengths are demultiplexed, pass to the switch; then sent to a multiplexer, and output from multiplexer to optical fiber) and has said second input and output ports be connected to an optical signal communication line being corresponded to said optical multiplexing and demultiplexing device(read as, optical fibers are connected to each multiplexer and demultiplexer); and a plurality of optical switches being placed so as to correspond to said external optical signal, which allows an external optical signal being corresponding to each of said optical switches to be

input to said first input and output port of said optical multiplexing and demultiplexing device when no failure has occurred in an optical signal communication line corresponding to a specified optical multiplexing and demultiplexing device (read as, signal are wavelength demultiplexed to many signals; then pass onto the switch before entering a wavelength multiplexer) and which does switching, when a failure has occurred in said optical signal communication line, so that said external optical signal is input to a first input and output port of an other multiplexing and demultiplexing device (read as, the switch in figure 2a-c, does switching of the transmission path when there is a failure in the optical fiber line) (title; abstract; figure 1, 2a-c; paragraphs 0069-0075).

Consider **claim 26, and as applied to claim 25 above**, Sugawara et al. further disclose, wherein a plurality of said first input and output ports of said plurality of said optical multiplexing and demultiplexing devices allow optical signal having wavelengths being different from one another to be transmitted (read as, signal consist of more than one wavelength, that is different than one another) (paragraph 0069).

Consider **claim 31**, Sugawara et al. clearly show and disclose, a switching device (read as, optical switching apparatus) for transmitting an external optical signal through a ring-type network in which a plurality of optical signal communication lines are connected between adjacent communication nodes, comprising: a plurality of optical multiplexing and demultiplexing devices (read as, MUX and DMUX in figure 1) each being placed so as to correspond to each of said optical signal communication lines and having a plurality of first input and output ports (read as, inputs from DMUX going into the switch) and one second input and output ports (read as, output from MUX after passing through switch), which allows optical

Art Unit: 2631

signals being different from one another to be transmitted between each of said first input and output ports and said second input and output ports (read as, signal of different wavelengths are demultiplexed, pass to the switch; then sent to a multiplexer, and output from multiplexer to optical fiber) and has an optical signal communication line corresponding to each of said optical multiplexing and demultiplexing devices be connected to said second input and output port (read as, optical fibers are connected to each multiplexer and demultiplexer); and a plurality of optical switches each being placed so as to correspond to said external optical signal (read as, signal are wavelength demultiplexed to many signals; then pass onto the switch before entering a wavelength multiplexer), which has, when no failure has occurred in an optical signal communication line corresponding to a specified optical multiplexing and demultiplexing device, an external optical signal corresponding to each of said optical switches be connected to a first input and output port of each of said optical multiplexing and demultiplexing devices and does switching, when a failure has occurred in said optical signal communication line (read as, the switch in figure 2a-c, does switching of the transmission path when there is a failure in the optical fiber line), so that said external optical signal be input to a first input and output port of other optical multiplexing and demultiplexing devices (title; abstract; figure 1, 2a-c; paragraphs 0069-0075).

Consider **claim 32, and as applied to claim 31 above**, Sugawara et al. further disclose, wherein a plurality of said first input and output ports of said plurality of said optical multiplexing and demultiplexing devices allow optical signal having wavelengths being different from one another to be transmitted (read as, signal consist of more than one wavelength, that is different than one another) (paragraph 0069).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. **Claims 27 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bortolini (US Patent # 6,813,408)** in view of **Sugawara et al. (US PGPub 2002/0044315)**.

Consider **claim 27**, Bortolini clearly shows and discloses, a switching device (read as, Wavelength router element, WRE) for transmitting a plurality of external optical signals through a plurality of optical signal communication lines comprising: a plurality of first optical multiplexing and demultiplexing devices (read as, plurality of first WRE 504, in figure 5a-c) each being placed so as to correspond to said optical signal communication line and having a plurality of first input and output ports (read as, input from signal 502(1) to 502(4), in figure 5a) and one second input and output ports (read as, one output signal 515, in figure 5), which allows optical signals being different from one another (read as, distinct spectral band) to be transmitted between each of said first input and output ports and said second input and output ports and has



Art Unit: 2631

each of said second input and output ports be connected to an optical signal communication line being corresponded to each of said optical multiplexing and demultiplexing devices (Figures 5a-c; column 7 lines 25-67); a plurality of second optical multiplexing and demultiplexing devices (read as, plurality of second WRE 504, in figure 5) each having a plurality of third input and output ports and one fourth input and output port, which allows optical signals being different from one another to be transmitted between each of said third input and output ports and said fourth input and output ports, each of said third input and output ports being connected to each of a plurality of external optical signals input and output ports being different from one another (figures 5b-d; column 7 lines 47-67 and column 8 lines 1-36).

Bortolini fails to disclose an optical switch being placed so as to correspond to each of said second optical multiplexing and demultiplexing devices, which has a fourth input and output port of a second optical multiplexing and demultiplexing device being corresponded to said optical switch be connected to a first input and output port of said first optical multiplexing and demultiplexing device when no failure has occurred in an optical signal communication line corresponding to a specified first optical multiplexing and demultiplexing device and does switching so that a fourth input and output port of said second optical multiplexing and demultiplexing device is connected to a first input and output port of other first optical multiplexing and demultiplexing device when a failure has occurred in said optical signal communication line.

In related art, Sugawara et al. disclose an optical switching apparatus. Wherein, signal with plurality of wavelengths are demultiplexed into a many signals; then traverse to a switch which performs no switching when there are no failure in optical fiber, but does performs

Art Unit: 2631

switching when there is a failure in an optical line occurs. Signals exiting the switch are multiplexed by a multiplexer before traversing to the next node through an optical fiber (figures 2a-c; paragraphs 0072-0075).

It would have obvious for a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Sugawara et al. with Bortolini. Since for an optical network to be reliable in the event of a failure of components or optical fibers, then it is necessary to be able to have a plurality of optical fibers along with switching capabilities. So that in an event there are failures within the network, the transmission path can be switched to another path easily and quickly.

Consider **claim 28, and as applied to claim 27 above**, Bortolini as modified by Sugawara et al. further disclose, wherein said plurality of said first input and output ports of said first optical multiplexing and demultiplexing device allows optical signals having wavelengths being different from one another (read as, distinct spectral band) to be transmitted and a plurality of said third input and output ports of said second optical multiplexing and demultiplexing device allows optical signals having wavelengths being different from one another to be transmitted (Bortolini; figures 5a-d; column 7 lines 26-67 and column 8 lines 1-36).

15. **Claims 29 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugawara et al. (US PGPub 2002/0044315) in view of Yamashita et al. (US Patent # 5,675,676).

Consider **claim 29**, Sugawara et al. disclose, a switching device (read as, optical switching apparatus) being connected between two optical signal communication lines making up a ring-type network for transmitting an external optical signal through said ring-type network,

Art Unit: 2631

comprising: two optical multiplexing and demultiplexing devices (read as, MUX and DMUX in figure 1) each being placed so as to correspond to each of said optical signal communication lines and having a plurality of first input and output ports (read as, inputs from DMUX going into the switch) and one second input and output port (read as, output from MUX after passing through switch), which allows optical signals being different from one another to be transmitted between each of said first input and output port and said second input and output port and has an optical signal communication line corresponding to each of said optical multiplexing and demultiplexing devices be connected to said second input and output port (read as, signal of different wavelengths are demultiplexed, pass to the switch; then sent to a multiplexer, and output from multiplexer to optical fiber) (figure 1 and 2a; paragraph 0069-0071); and a plurality of optical switches each being placed so as to correspond to said external optical signal, which has, when no failure has occurred in an optical signal communication line being connected to an optical multiplexing and demultiplexing device corresponding to a specified optical signal communication line, an external optical signal being corresponded to each of said optical switches be input to a first input and output port of each of said optical multiplexing and demultiplexing devices (read as, signal are wavelength demultiplexed to many signals; then pass onto the switch before entering a wavelength multiplexer) and does switching, when a failure has occurred in said optical signal communication line, so that said external optical signal is input to a first input and output port of each of said optical multiplexing and demultiplexing devices corresponding to an other one optical signal communication line (read as, the switch in figure 2a-c, does switching of the transmission path when there is a failure in the optical fiber line) (figures 2a-c; paragraphs 0072-0075).

Sugawara et al. fail to disclose wherein, part of said first input and output ports be connected to one another.

In related art, Yamashita et al. disclose an optical branching apparatus. Wherein, one of the outputs from a multiplexing and demultiplexing unit is connection to one of the inputs of another multiplexing and demultiplexing unit. This arrangement has the purpose of allowing transmission path rerouting in the event of a failure, but without the use of an optical switch (figure 1; column 1 lines 1-43).

It would have obvious for a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Yamashita et al. with Sugawara et al. Since, the possibility of a switch failing is there; if the switch fails then there are no other means for rerouting transmission path. Thus, if there are optical fibers connection between each multiplexing and demultiplexing units within a node, then when the switch fail, the signal can be rerouted using the optical fibers.

Consider **claim 30, and as applied to claim 29 above**, Sugawara et al. as modified by Yamashita et al. further disclose, wherein a plurality of said first input and output ports of said plurality of said optical multiplexing and demultiplexing devices allow optical signal having wavelengths being different from one another to be transmitted (Yamashita et al.; figure 1; column 7 lines 21-43).

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) Nishio, Makoto; 5,194,977
- b) Yamane et al.; 5,327,275

- c) Kanterakis et al.; 5,515,194
- d) Okayama, Hideaki; 5,973,809
- e) Bortz, Michael; 6,771,905
- f) Hemenway et al.; 6,771,852
- g) Fee, John A.; 5,777,761

17. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

18. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Thi Le whose telephone number is (571) 270-1104. The Examiner can normally be reached on Monday-Friday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

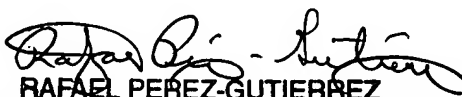
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 2631

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Thi Le*  
August 28, 2006

  
RAFAEL PEREZ-GUTIERREZ  
SUPERVISORY PATENT EXAMINER  
8/28/06